

REMARKS

Please reconsider the application in view of the above amendments and the following remarks.

Disposition of Claims

Prior to this amendment, the application included claims 1-14. Applicants have amended claims 1, 7, 10, and 12. Applicants have also cancelled claim 4 and added claims 15-26. Accordingly, claims 1-3 and 5-26 are presented for examination, with claims 1 and 12 being in independent form.

Objections

The Examiner objected to the specification because applicants' use of the term "width" to describe the nozzles. The applicants respectfully traverse because the nozzles may be shaped other than circular. Thus, the applicants use the term "width" rather than "diameter" when describing the nozzles.

The Examiner objected to claims 1 and 5 because of applicants' use of the term "nozzle width." The applicants respectfully traverse because the nozzles may be shaped other than circular.

The Examiner objected to claim 7 because of applicants' use of the phrase "2 micron to about 50 micron." Applicants have amended claim 7 to read "2 microns to about 50 microns."

The Examiner objected to claims 10 and 12 because of applicants' use of the term "nozzle opening width." The applicants respectfully traverse because the nozzles may be shaped other than circular. The Examiner also objected to claim 10 because of the term "200 micron." Applicants have amended claim 10 to read "200 microns."

Rejections under 35 U.S.C. §§102, 103

The Office Action rejects claims 1-6, 8-10, and 12 under 35 U.S.C. 102(b) as being anticipated by Bentin. (U.S. Patent No. 4,413,268).

Independent Claim 1

The Examiner rejected claim 1 as anticipated by Bentin. Applicants have amended independent claim 1 by deleting the limitation "the channel being spaced from the nozzle opening by a distance of 20% of a nozzle opening width or more," which is now recited in dependent claim 15. Independent claim 1 now recites "a channel formed in the substrate proximate the nozzle opening for drawing fluid into the space defined by the channel."

Applicants submit that Bentin does not describe a channel formed in the substrate proximate the nozzle opening for drawing fluid into the space defined by the channel, as recited in amended independent claim 1. Rather, Bentin describes that when ink is left on the nozzle brim, the interior and exterior edges of the jet nozzle brim are sharp, and the ink droplet 9 will of necessity distribute itself uniformly over the entire jet nozzle brim 3, without flowing over its edges. This situation is shown in Fig. 5b. (See col. 4, lines 60-68).

Accordingly, applicants submit that claim 1 is not anticipated and respectfully requests that the rejection under 35 U.S.C. 102(b) be withdrawn. Furthermore, because claims 2, 3, 5, 6, and 8-10 depend from claim 1, these dependent claims are not anticipated for at least the same reason that independent claim 1 is not anticipated.

The Examiner also rejected dependent claim 7 as being unpatentable over Bentin in view of Su et al. (U.S. 6,132,028). The Examiner acknowledges that Bentin fails to disclose that the depth of the channel is from about 2 microns to about 50 microns, but cites Su as disclosing this feature. Applicants submit however that any proper combination of Bentin and Su fails to disclose a channel formed in the substrate proximate the nozzle opening for drawing fluid into the space defined by the channel, a portion of the channel being below the plane defined by the surface of the substrate.

Accordingly, applicants submit that claim 7 is not obvious and respectfully requests that the rejection under 35 U.S.C. 103 be withdrawn.

Independent Claim 12

The Examiner also rejected claim 12 as anticipated by Bentin. Applicants have amended independent claim 12 by deleting the limitation "the channel being spaced from the nozzle opening by a distance of 20% of a nozzle opening width or more," which is now recited in dependent claim 20. Independent claim 12 now recites "a channel formed in the substrate proximate the nozzle opening for drawing fluid into the space defined by the channel."

Applicants submit that Bentin does not describe a channel formed in the substrate proximate the nozzle opening for drawing fluid into the space defined by the channel," as recited in amended independent claim 12. Rather, Bentin describes that when ink is left on the nozzle brim, the interior and exterior edges of the jet nozzle brim are sharp, such that the ink droplet 9 will of necessity distribute itself uniformly over the entire jet nozzle brim 3, without flowing over its edges. This situation is shown in Fig. 5b. (See col. 4, lines 60-68).

Accordingly, applicants submit that claim 12 is not anticipated and requests that the rejection under 35 U.S.C. 102(b) be withdrawn.

The Examiner also rejected dependent claims 11, 13, and 14 as being unpatentable over Bentin in view of Held (U.S. 5,853,861). The Examiner acknowledges that Bentin fails to disclose a piezoelectric actuator, the fluid having a surface tension of about 20-50 dynes/cm, and the fluid having a viscosity of about 1 to 40 centipoise, but cites Held as disclosing this feature. Applicants submit however that any proper combination of Bentin and Held fails to disclose a channel formed in the substrate proximate the nozzle opening for drawing fluid into the space defined by the channel, a portion of the channel being below the plane defined by the surface of the substrate.

Accordingly, applicants submit that claims 11, 13, and 14 are not obvious and request that the rejection under 35 U.S.C. 103 be withdrawn.

Conclusion

The applicants believe that the claims have been shown to be allowable over the prior art. Applicants believe that this reply is responsive to each ground of rejection cited by the

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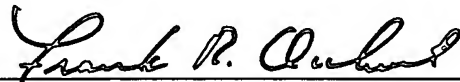
Attorney's Docket No.: 09991-151001

examiner in the Action dated July 6, 2005, and respectfully requests favorable action in this application.

Enclosed is a Petition for Extension of Time and a check (\$1020 – three-month) for the associated fee. Please apply any other charges, not covered, or credits to deposit account 06-1050, referencing Attorney Docket Number 09991-151001.

Respectfully submitted,

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